CLAIMS

What is claimed is:

1. A fluid rail for conveying an actuating fluid under pressure from an actuating fluid source to a respective fuel injector of an internal combustion engine, the fluid rail being disposable in a space defined in part by a rocker arm carrier of the engine, the fluid rail comprising:

a. A first rail portion having a substantially cylindrical inside diameter defining a first substantially cylindrical flow passage;

b. A second rail portion having a substantially cylindrical inside diameter defining a second substantially cylindrical flow passage;

c. A rail fluid outlet defined in a selected one of the rail portions associated with each respective fuel injector serviced by the rail;

d. At least one tubular interconnecting fluid coupling fluidly connected to the first rail portion and to the second rail portion for conveying actuating fluid therebetween, the tubular interconnecting fluid coupling having a substantially cylindrical inside diameter defining an interconnecting cylindrical flow passage; and

e. A rail fluid inlet defined in a selected one of the rail portions for fluid communication with the source of actuating fluid.

2. The fluid rail of claim 1 having a plurality of tubular interconnecting fluid couplings.

3. The fluid rail of claim 1 having a wall thickness of between .0035 and .010 inches.

4. The fluid rail of claim 3 having a wall thickness of substantially .005 inches.

5. The fluid rail of claim 1 the first rail portion and the second rail portion being spaced apart in a substantially parallel disposition.

6. The fluid rail of claim 1 the at least one tubular interconnecting fluid passage spanning the space between the first rail portion and the second rail portion.

7. The fluid rail of claim 1, a one of the rail portions having a wavy shape.

8. The fluid rail of claim 6, the second of the rail portions having a straight shape.

9. The fluid rail of claim 1 being cast of a metallic material.

10. The fluid rail of claim 1 being cast as a unitary, integral structure.

11. The fluid rail of claim 1 having a volume of between 15 cubic inches and 60 cubic inches.

12. The fluid rail of claim 11 having a volume of substantially 30 cubic inches.

13. A fluid rail for conveying an actuating fluid under pressure from an actuating fluid source to a respective fuel injector of an internal combustion engine, the fluid rail comprising:

a. a rail assembly being disposable in a space defined in part by a rocker arm carrier of the engine and having;

b. a first rail portion having a substantially cylindrical inside diameter defining a first substantially cylindrical flow passage;

c. a second rail portion having a substantially cylindrical inside diameter defining a second substantially cylindrical flow passage;

d. at least one tubular interconnecting fluid coupling fluidly connected to the first rail portion and to the second rail portion for conveying actuating fluid therebetween, the tubular interconnecting fluid coupling having a substantially cylindrical inside diameter defining an interconnecting cylindrical flow passage; and

e. having a volume of between 15 cubic inches and 60 cubic inches.

14. The fluid rail of claim 1 having a plurality of tubular interconnecting fluid couplings.

15. The fluid rail of claim 1 having a wall thickness of between .0035 and .010 inches.

16. The fluid rail of claim 3 having a wall thickness of substantially .005 inches.

17. The fluid rail of claim 1 the first rail portion and the second rail portion being spaced apart in a substantially parallel disposition.

18. The fluid rail of claim 1 the at least one tubular interconnecting fluid passage spanning the space between the first rail portion and the second rail portion.

19. The fluid rail of claim 1, a one of the rail portions having a wavy shape.

20. The fluid rail of claim 6, the second of the rail portions having a straight shape.

21. The fluid rail of claim 1 being cast of a metallic material.

22. The fluid rail of claim 1 being cast as a unitary, integral structure.

23. The fluid rail of claim 11 having a volume of substantially 30 cubic inches.

24. A method of conveying an actuating fluid under pressure from an actuating fluid source to a respective fuel injector of an internal combustion engine, the method comprising:

disposing a rail assembly in a space defined in part by a rocker arm carrier of the engine;

forming a first rail assembly portion having a substantially cylindrical inside diameter defining a first substantially cylindrical flow passage;

forming a second rail assembly portion having a substantially cylindrical inside diameter defining a second substantially cylindrical flow passage;

forming at least one tubular interconnecting fluid coupling fluidly connected to the first rail portion and to the second rail portion for conveying actuating fluid therebetween, the tubular interconnecting fluid coupling having a substantially cylindrical inside diameter defining an interconnecting cylindrical flow passage; and

defining a volume of between 15 cubic inches and 60 cubic inches in the rail assembly.

25. The method of claim 24 including forming a plurality of tubular interconnecting fluid couplings.

26. The method of claim 24 including forming a rail assembly wall with a wall thickness of between .0035 and .010 inches.

27. The method of claim 26 including forming a rail assembly wall with a wall thickness of substantially .005 inches.

28. The method of claim 24 including spacing the first rail assembly portion and the second rail assembly portion apart in a substantially parallel disposition.

29. The method of claim 24 including disposing the at least one tubular interconnecting fluid passage to span the space between the first rail assembly portion and the second rail assembly portion.

30. The method of claim 24, including froming a one of the rail assembly portions of a wavy shape.

31. The method of claim 30, including forming the second of the rail assembly portions of a straight shape.

32. The method of claim 24 including casting the rail assembly of a metallic material.

33. The method of claim 24 including casting the rail assembly as a unitary, integral structure.

34. The fluid rail of claim 24 including defining the rail assembly volume of substantially 30 cubic inches.